



Certificate

Standard Reference Material 4902

Alpha-Ray Standard

Polonium-210

This standard consists of a practically weightless source of polonium-210 deposited on a monel disk $\frac{1}{16}$ -inch thick.

When measured in the National Bureau of Standards $2\pi\alpha$ -proportional counter, the number of alpha particles per second emitted into the forward hemisphere (including those backscattered) as of _____ was found to be

* $\pm 2.0\%$ *

Since polonium-210 decays with a half life of 138.4 days, the number of alpha particles, $N(t)$, emitted per second in the same geometry at any subsequent time, t , in days, is given by

$$N(t) = e^{-0.005008t}$$

The uncertainty, ± 2.0 percent stated above, is the linear sum of 1.5 percent, which is three times the standard error, and 0.5 percent, which is the linear sum of the estimated limits of all systematic errors considered to be possible.

This standard was prepared and calibrated in the Institute for Basic Standards, Radiation Physics Division, by members of the Radioactivity Section, W. B. Mann, Chief.

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